

Malta Journal of Health Sciences  
<https://doi.org/10.14614/STROKECOMM/6/20>  
DOI: 10.14614/STROKECOMM/6/20

### Research Paper

## Fear of COVID-19 and its Impact on Maltese University Students' Wellbeing and Substance Use

Bonnici Jamie<sup>1</sup> ([jamie.bonnici@um.edu.mt](mailto:jamie.bonnici@um.edu.mt)), Marilyn Clark<sup>2</sup>, Andrew Azzopardi<sup>3</sup>

<sup>1</sup> Faculty for Social Wellbeing, University of Malta, Msida, Malta.

<sup>2</sup> Department of Psychology, Faculty for Social Wellbeing, University of Malta, Msida, Malta.

<sup>3</sup> Department of Youth & Community Studies, Faculty for Social Wellbeing, University of Malta, Msida, Malta.

**Abstract.** The present study examines the psychological aspect of fear, in relation to the COVID-19 pandemic, in an attempt to understand the effects of this pandemic on University of Malta students' substance use and wellbeing. Participants ( $n = 777$ ) completed an online survey which utilised the Fear of COVID-19 Scale, as well as items relating to religiosity and substance use prior to, and during, the COVID-19 pandemic. Results show that significant associations exist between fear of COVID-19 and self-reported increase in alcohol use, as well as impacts of COVID-19 fear on negative emotional conditions such as depression, exhaustion, and loneliness. Significant associations were also found between fear of COVID-19 and gender and religiosity, with females and more religious participants experiencing higher levels of fear of COVID-19. These findings reveal the multifaceted interactions between fear of COVID-19, religiosity, and gender on students' wellbeing and substance use, with potential recommendations for further research and practice.

**Keywords.** COVID-19, substance use, wellbeing, fear, university students.

### 1. Introduction

The COVID-19 pandemic has had devastating health and economic implications across the globe. As of early November 2020, 6,590 infections and 65 deaths due to COVID-19 had been registered in Malta. Vast numbers of people have become unemployed. Consequently, it has negatively impacted the wellbeing of individuals, families and communities with devastating implications for mental health (Alradhawi et al., 2020). The World Health Organization (WHO) acknowledges that this unpredictable and rapidly spreading disease is causing fear and worry worldwide (Kluge, 2020).

Students all around the globe have experienced major disruptions in their academic experience. While academic institutions have made a number of adaptations to the changing teaching and learning requirements imposed by the pandemic and there exists plenty of evidence for the effectiveness of online learning (Aberson et al., 2003; Al-Jarf, 2004), the shift to such a learning modality has been a learning curve for students and academics alike. Online learning is not always possible for all university courses, most especially for those with field placements and practical elements. However, a study of the impact that the COVID-19 pandemic had on the lives of higher education students (Aristovnik et al., 2020) showed that students at the University of Malta were amongst the most successful at adjusting to online learning and registered high satisfaction with the teaching staff during the pandemic. University students could also be particularly vulnerable to unwanted mental health issues due to the current pandemic because of the developmental period which a majority of students find themselves in (Sun et

Received: 04.09.2020; Revised: 15.11.2020;

Accepted: 24.11.2020;

Published: 30.12.2020

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al., 2020); Emerging adulthood is a time where a number of mental disorders first begin to show symptoms, which can result in higher risk of substance use, poor health behaviours, and lower academic achievement (Arnett et al., 2014; Patel et al., 2007). Increased exposure to stressors brought about by COVID-19 will also increase the risk of experiencing mental health difficulties (Goldmann & Galea, 2014). The absence of a campus experience may also increase the experience of isolation among the student population. A study on the experience of loneliness in the midst of the pandemic reported increased rates of loneliness amongst participants in Malta ( $n = 906$ ) of more than double the proportion reported in the previous year, with 35% of participants classified as severely or very severely lonely according to the De Jong Gierveld Loneliness Scale, compared to 2% in 2019 (Clark et al., 2019; Azzopardi et al., 2020). Also, results revealed that younger participants, as well as foreign nationals living in Malta, were significantly more likely to report frequent feelings of loneliness, highlighting the need to consider the wellbeing of specific sociodemographic groups during a pandemic (Azzopardi et al., 2020).

Previous studies investigating the psychological effects of public health emergencies on university students suggested the expression of numerous negative effects, including fear, worry, and anxiety (Mei et al., 2011). The WHO has acknowledged the possible difficulties related to mental health as a result of COVID-19 (WHO, 2020). Amongst university students it has created a strong sense of uncertainty and increased stress. Many students have become concerned about their future careers especially those in their final year of studies. Studies have found that many students reported experiencing mental health difficulties (e.g. Cao et al., 2020; Harper et al., 2020). Cao et al. (2020) administered the 7-item Generalized Anxiety Disorder Scale (GAD-7) to a sample of Chinese university students and results showed that 24.9% were experiencing some form of anxiety. Moreover, correlational analysis revealed a positive association with anxiety symptoms and delays in academic activity, as well as economic effects and those on daily living, suggesting a complex interaction of different factors related to the pandemic. A negative association has been found between level of anxiety and social support, indicating that social support acts as a protection against the detrimental psychiatric and psychological effects of an pandemic such as COVID-19 (Kabat-Zinn, 1994; Sun et al. 2020). Furthermore, greater usage of screen media devices tends to be associated with an increased incidence of depressive symptoms, whilst psychiatric symptom

severity was also linked to COVID-19 related financial stress, as well as to perceived stigma and threat related to COVID-19. Similarly, Sharma et al. (2020) revealed that social media use was a risk factor in mental health effects of COVID-19, along with experiencing sudden changes to work or student life, among others.

Further to the COVID-19 pandemic's effect on mental health, it is important to consider its influence on individuals' substance use. Dumas et al. (2020) reported on changes in Canadian adolescents' ( $n = 1,054$ ) substance use which occurred as a result of the COVID-19 pandemic. They found that the frequency of use of most substances decreased, with the exception of alcohol and cannabis, the use of which increased. Also, their results reveal information about the social contexts of adolescent substance use during the pandemic. Adolescents who considered themselves to be less popular were significantly more likely to engage in face-to-face substance use because of a fear that social distancing would impact their reputation, which is concerning due to their increased risks of contracting COVID-19. On the other hand, adolescents who considered themselves to be of average or high popularity were significantly more likely to engage in solitary substance use, due to concerns about social distancing impacting their reputation. Moreover, using substances in a solitary setting was associated with depression and fears about becoming infected with COVID-19. This is important because adolescents who use substances in a solitary setting are at risk of experiencing poorer mental health and reduced coping abilities (Dumas et al., 2020).

Fear, defined as an unpleasant emotion which is triggered when an individual perceives a threatening stimulus (de Hoog et al., 2008) is one of the psychological aspects in relation to the COVID-19 pandemic (Pakpour & Griffiths, 2020). An individual's level of fear about COVID-19 can have positive effects in terms of reducing their likelihood of becoming infected with the virus, due to stricter adherence to public health directives. A study by Harper et al. (2020), which used the Fear of COVID-19 Scale (FCV-19S), reported that higher scores on the scale were positively associated with behaviour changes; individuals who perceived the threat of COVID-19 as severe were more likely to engage in preventive measures that limit the spread of the virus. Yet, despite the positive effects of individuals' fear of COVID-19, the pandemic is also likely to have unwanted consequences such as increased substance use and negative psychological effects. The present study thus sought to explore the

effects of fear of COVID-19 on university students' wellbeing, in order to contribute to the understanding of how psychological factors and substance use may interact within the context of a pandemic. It is important to consider the factors which could influence adherence to public health directives, since this can inform policy measures.

## 2. Methods

The present study, conducted in cooperation with Ben Gurion University of the Negev – Regional Alcohol and Drug Abuse Research Center, used the 'Fear of COVID-19 Scale' (FCV-19S) developed by Ahorsu et al. (2020), to assess the levels of fear of COVID-19 amongst a non-probability convenience sample of students from the University of Malta. Ethical approval was obtained from the Faculty for Social Wellbeing Research Ethics Committee at the University of Malta (Ref. 4876). Data was collected through an online Qualtrics survey tool, which was distributed by the University of Malta

**Table 1. Sample demographics**

Variable		Value
Gender		% (n)
	Male	29.4 (219)
	Female	69.3 (517)
	Other	1.3 (10)
Age		
	Mean (SD)	24.5 (8.2)
	Median	21
	Range	18.0 – 60.0
Religiosity		% (n)
	Not religious	30.2 (225)
	Somewhat religious	42.5 (316)
	Religious/very religious	27.3 (203)

**Table 2. COVID-19 fear according to gender and religiosity**

Variable		COVID-19 Fear Mean (SD)	n
Gender	Male	21.4 (6.1)***	219
	Female	25.4 (6.6)***	517
Religiosity	Secular	22.4 (6.3)***	225
	Somewhat religious	24.8 (6.3)***	316
	Religious/very religious	25.4 (7.3)***	203

\*\*\* $p < .001$  ( $\chi^2$  test)

Registrar's Office to all current students at the University. Fear of COVID-19 was assessed by asking participants to indicate their level of agreement with seven statements, using a 5-point Likert scale, where 1 indicates strong disagreement and 5 indicates strong agreement. The total scores of all seven statements produces a total score, with higher scores indicating a greater level of COVID-19 fear. Fear of COVID-19 scores were only calculated for those participants who answered all seven items on the scale ( $n = 712$ ). Participants were also asked about how the fear of COVID-19 had impacted their substance use, including alcohol, tobacco, cannabis, and prescription medication, as well as its impact on their physical and emotional states. Other variables included participants' gender, age,

and level of religiosity (not religious, somewhat religious, or religious/very religious).

## 2.1. Statistical Analysis

The FCV-19S demonstrated good internal consistency, with a Cronbach's alpha of 0.866. Statistical analyses were carried out using SPSS (v. 26), by conducting a Chi-Square test of association for the variables of interest.

**Table 3. Substance use before COVID-19 according to gender and religiosity**

Substance	Gender		Religiosity		
	Male	Female	Secular	Somewhat religious	Religious
	( $n=219$ )	( $n=517$ )	( $n=225$ )	( $n=316$ )	( $n=203$ )
	% ( $n$ )	% ( $n$ )	% ( $n$ )	% ( $n$ )	% ( $n$ )
Cigarettes	19.8 (41)	19.4 (95)	26.4 (56)***	20.9 (63)***	10.4 (20)***
Alcohol	70.2 (146)	66.9 (329)	72.6 (154)**	69.5 (210)**	59.3 (115)**
Cannabis	11.7 (24)	7.5 (35)	17.2 (36)***	8.5 (25)***	0.5 (1)***
Medical cannabis	0.5 (1)	0.4 (2)	1.0 (2)	0.3 (1)	0.0 (0)
Ritalin	1.0 (2)	1.3 (6)	1.4 (3)	1.0 (3)	1.1 (2)
Pain relievers	2.0 (4)***	10.4 (50)***	6.3 (13)	8.8 (26)	8.3 (16)
Sedatives	2.0 (4)	2.3 (11)	1.9 (4)	2.0 (6)	3.1 (6)

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  ( $\chi^2$  test)

**Table 4. Increased substance use due to fear of COVID-19**

	More cigarette smoking		More alcohol use		More cannabis use	
	Yes	No	Yes	No	Yes	No
	( $n = 54$ )	( $n = 82$ )	( $n = 142$ )	( $n = 333$ )	( $n = 29$ )	( $n = 33$ )
Mean FCV-19S Score ( $SD$ )	24.3 (6.5)	24.1 (6.5)	25.1 (6.3)*	23.4 (6.8)*	23.3 (5.1)	22.6 (6.8)

\* $p < .05$  ( $\chi^2$  test)

### 3. Results

The mean score on the COVID (FCV-19S) was 24.2 (Table 1). The majority of participants ( $n = 252$ , 32%) scored in the high range on the FCV-19S Scale ( $M = 24.2$ ,  $SD = 6.7$ ), followed by 233 (29.9%) participants who were classified as having a medium level of fear, and finally, 227 (29.2%) participants with a low level of fear of COVID-19. The remaining participants' scores could not be calculated due to lack of complete responses on all of the scale items.

Results revealed that gender and religiosity were significantly associated with scores on the FCV-19S (Table 2). Females were more likely than males to have a higher level of fear of COVID-19 and students who identified as more religious were also more likely to score highly on the FCV-19S.

Also, the data provide insight into students' substance use, both prior to and during the COVID-19 pandemic (Table 3). Gender was significantly associated with the percentage of students who used pain relievers before the pandemic, with 10.4% of females admitting to using pain relievers compared to 2% of males. Students' religiosity was another variable significantly associated with use of

certain substances prior to the pandemic. Results reveal that more religious students used significantly less cigarettes, alcohol, and cannabis prior to the COVID-19 pandemic.

For those respondents who used substances prior to the COVID-19 pandemic, 39.7% reported increased use of cigarettes, 29.9% reported increased use of alcohol, and 46.9% reported increased cannabis use – all as a result of their fear of COVID-19.

Regarding the COVID-19 fear and its impact on participants' more than usual substance use, analysis revealed significant associations between COVID-19 fear and alcohol use (Table 4). Participants reporting that they did not use more alcohol than usual due to COVID-19 had a significantly lower mean FCV-19S score. Accordingly, those who reported more alcohol use due to COVID-19 had a significantly higher mean FCV-19S score.

The impact on participants' lives related to COVID-19 led to an 8.7% increase in binge drinking during the past month. A change in binge drinking was also associated with religiosity, with less religious participants more likely to binge drink during the past month (Table 5).

**Table 5. Binge drinking during the last month because of COVID-19**

	Total	Gender		Religiosity		
	$n = 777$	Male	Female	Secular	Somewhat religious	Religious
		( $n = 219$ )	( $n = 517$ )	( $n = 225$ )	( $n = 316$ )	( $n = 203$ )
Binge drinking %	8.7	9.5	8.1	11.7*	9.2*	4.6*

\* $p < .05$  ( $\chi^2$  test); Gender and Religiosity total  $n$  does not include missing data.

**Table 6. Psychological effects of COVID-19 according to gender and religiosity**

Increased psychological effects due to COVID-19	Total	Gender		Religiosity		
		Male	Female	Secular	Somewhat religious	Religious
		( $n = 219$ )	( $n = 517$ )	( $n = 225$ )	( $n = 316$ )	( $n = 203$ )
Depressed, % ( $n$ )	60.0 (423)	51.0 (107)**	63.4 (308)**	59.0 (125)	62.5 (188)	57.1 (109)
Exhausted, % ( $n$ )	64.9 (458)	51.0 (107)***	70.2 (342)***	65.6 (139)	66.1 (199)	62.0 (119)
Lonely, % ( $n$ )	61.0 (431)	57.4 (120)	62.6 (306)	64.6 (137)	62.0 (186)	55.2 (107)
Nervous, % ( $n$ )	70.4 (498)	57.1 (120)***	76.0 (371)***	65.6 (139)*	75.5 (228)*	68.2 (131)*
Angry, % ( $n$ )	52.5 (371)	44.5 (93)**	55.9 (273)	50.9 (108)	53.5 (161)	53.1 (102)

Total  $n = 777$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  ( $\chi^2$  test); Gender and Religiosity total  $n$  does not include missing data.



Participants were asked about the psychological effects COVID-19 had on them (Table 6). The majority of respondents (70.4%) reported feeling more nervous in the past month as a result of COVID-19, followed by 64.9% who had felt more exhausted. Gender differences were significantly associated with an increase in feeling depressed, exhausted, nervous, and angry. In addition, 61% of participants reported an increase in feeling lonely, although no gender differences were found to be significant.

Regarding the psychological effects of COVID-19, religiosity demonstrated an association with an increase in feeling nervous during the past month. Participants who were somewhat religious reported the largest increases in feeling nervous (75.5%), followed by 68.2% of religious participants and 65.6% of secular participants. University students identifying as religious were less likely to report feeling depressed, exhausted and lonely but more likely to report feeling nervous and angry (Table 6). Gender differences were also noted for increased psychological effects due to COVID-19, with females reporting significantly higher rates of depression, exhaustion, and nervousness.

Finally, analyses were carried out to assess the impact of emotional conditions on participants' level of COVID-19 fear. Significant associations were found for all emotional conditions, with the highest mean scores for COVID-19 fear noted amongst participants who felt more depressed in the past month because of the pandemic.

#### 4. Discussion

These results show that a large proportion of student participants from the University of Malta have a significant degree of fear regarding COVID-19. This study showed that females were more likely than males to have a higher level of fear of COVID-19 as well as an increased likelihood of experiencing certain negative emotions during the pandemic. Other studies have shown similar findings. For example, a study by van der Vegt and Kleinberg (2020) compared self-reported emotions of men and women during COVID-19 and found that women experienced more worry, anxiety, fear, anger and sadness than men. A study examining gender differences in posttraumatic stress symptoms (PTSS) to COVID-19 found a higher prevalence of symptoms among females (Liu et al., 2020). Research using the same FCV-19S scale as this study amongst university students in Russia

and Belarus also showed that females had significantly higher levels of COVID-19 fear (Reznik et al., 2020). Earlier research showed that women are more likely to experience disturbing thoughts than men (Kendler et al., 2001; McLean & Anderson, 2009; Soni et al., 2013). According to Nolen-Hoeksema (1990), a large number of studies have identified gender differences in adaptations to stressful life events. This may be located within the socio-economic positioning of women. According to Alon et al. (2020), while recessions are more likely to impact male employment, COVID-19 has impacted the hospitality industry significantly, an area where one finds high female employment. COVID-19 has also seen the closure of day care centers and schools which has had a negative repercussion on working mothers. A large number of Maltese university students hold part time jobs mainly within the hospitality sector. While many university students may not be parents, female students may be expected to help with child care tasks more so than their male counterparts. Alon et al. (2020) are hopeful that one of the potential positive consequences of COVID-19 is that it will create more balance among men and women in terms of childcare and household responsibilities and challenge social norms contributing to the imbalance in the division of labour.

Students who identified as more religious were also more likely to score highly on the Fear of COVID-19 scale. The present study's findings are consistent with existing research using the same FCV-19S and support the notion that religious students' level of fear is greater than that of more secular students (Gritsenko et al., 2020; Jaspal et al., 2020). This notion contradicts the view that being religious acts as a protective factor in helping individuals to deal with life's difficulties and thereby promoting a sense of psychological wellbeing (Howell et al., 2019; Koenig, 2015). Furthermore, researchers who investigated religiosity amongst individuals in Belarus and Russia revealed that such religiosity may be more declarative, without being accompanied by engaging in acts of religious practice such as receiving communion and praying (Tikhomirov, 2017; Zabaev et al., 2018). Religiosity was also associated with a higher likelihood of feeling nervous in the past month because of COVID-19, with religious students experiencing the greatest increase in nervous feelings. This could possibly be accounted for by the impact of COVID-19 on students' ability to attend religious services.

Although religiosity was not protective vis-à-vis psychological wellbeing, it may however serve as a

protective factor against contracting COVID-19 due to increased sense of fear. The data also reveal that, prior to COVID-19, cigarette, alcohol, and cannabis use were significantly associated with students' level of religiosity as well as with gender. For all three of these substances, the percentage of students reporting their use was lower amongst more religious students than their more secular colleagues. Religious and somewhat religious students were also less likely to have increased instances of binge drinking in the past month because of the impact that COVID-19 had on their lives. These findings may point toward a protective function of religiosity amongst students, in that their spiritual beliefs could have reduced the desire for substance use. The relationship between religiosity or more specifically 'involvement in religion' (Kelly et al., 2015, p. 505) and deviant behaviour has been investigated for a number of years since the landmark research by Hirshi and Stark published in 1969 which surprisingly discovered a lack of relationship between involvement in organised religion and delinquency, including substance use. Replications of this seminal study have resulted in mixed findings. However, according to Kelly et al. (2015) a number of reviews support the more commonsense understanding that involvement in religion would be negatively associated with delinquent activity. Kelly et al.'s meta analysis of 62 studies spanning over 40 years once again confirmed the negative relationship between religious involvement and delinquency. The present research adds to the understanding of the protective potential of religiosity against a specific form of deviant behavior, that is, substance abuse.

Gender differences in substance use have been extensively studied, with males consistently having higher rates of use than females (Clark, 2015). However, the gender gap has been narrowing over the last few years and in the case of the non-medical use of prescription drugs (NMUPD), has actually been reversed with more females using prescription medication in a way other than that indicated by a physician (Clark, 2015). The gender differences in NMUPD are also influenced by the category of prescription medication. In this study, women reported greater use of all categories of prescription medication but differences were significantly notable for pain relievers. This has been substantiated in other studies (Clark, 2015).

While large proportions of the young people surveyed claimed to have increased their use of alcohol, tobacco and cannabis, COVID-19 fear was only significantly

associated with increased alcohol use. This may be related to the fact that COVID-19 is primarily a respiratory illness. Hence, cigarette or cannabis use could be considered as more risky behavior in comparison to alcohol use.

## 5. Limitations

The main limitations in this study concern the mode of data collection. Self-report studies, where individuals self-assess their experience of a phenomenon, often contain response bias. Participants may have over – or under-reported their fear of COVID-19 as well as their experience of negative emotions and their involvement in substance use. In addition, non-probability convenience sampling does not allow generalisation to the entire population of university students.

## 6. Conclusions

The results of this study show that university students in Malta have been negatively impacted by the COVID-19 pandemic and that student support services including student advisory (academic) and student counselling services need to be ready to deal with the potential fallout arising from increased negative emotional states and increased substance use during the pandemic. University student support services need to be properly equipped to ascertain an adequate and continued service and should anticipate increased numbers of students accessing them.

Overall, these results highlight the potential protective function that religiosity plays in reducing students' use of certain substances. This could indicate that students who are not religious may benefit from increased support, which may allow them to cope with life stressors in more healthy ways.

The gender differences which emerged with regard to students' experience of negative emotions points to young females' vulnerability in this regard and warrants further research about what impact COVID-19 might be having, specifically on females. Other studies have found similar results and it is clear that gender is an important dimension in adaptation to the pandemic. The gender differences in the use of pain relievers prior to the COVID-19 pandemic also warrant attention. Further research may be needed to understand the factors underlying females' increased use of pain relievers and to devise appropriate strategies for addressing such use. Gender mainstreaming should be prioritised in both

preventative and treatment interventions and gender differences in the experience of stress and coping styles always considered in planning interventions.

Finally, the rise in use of certain substances amongst students requires consideration due to the potential increase in harmful effects on physical and psychological wellbeing. This paper recommends that a meaningful research agenda is developed at the University of Malta to continuously monitor student wellbeing. Adequate funding should be allocated for this purpose.

## Acknowledgements

The present study authors are grateful for the opportunity to collaborate on this research with colleagues from the Regional Alcohol and Drug Abuse Research (RADAR) Center at Ben Gurion University in Israel; Prof. Richard Isralowitz, Dr. Alexander Reznik, Dr. Yuval Zolotov, Shmaya Bender, and Mor Yehudai, MSW.

## Funding

This research has received no specific grant from any funding agency in the public, commercial or non-profit sectors.

## Conflicts of Interest

The authors report no conflicts of interest.

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